

Message Text

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PAGE 01 VIENNA 00001 091341Z

ACTION IO-14

INFO OCT-01 EUR-12 ISO-00 SSO-00 NSCE-00 INRE-00
ACDA-12 CIAE-00 INR-10 L-03 NSAE-00 EB-08 NRC-05
OES-07 SOE-02 DODE-00 SS-15 SP-02 PM-05 AF-10
ARA-10 EA-10 NEA-10 /136 W
-----093160 091347Z /43

O 091318Z JAN 78

FM AMEMBASSY VIENNA

TO SECSTATE WASHDC IMMEDIATE 5112

USDOEHQ GERMANTOWN IMMEDIATE

INFO USDOEHQ WASHDC

AMEMBASSY BRUSSELS

AMEMBASSY BONN

C O N F I D E N T I A L SEC 1 OF 2 VIENNA 1233

USIAEA, USEEC

DEPT PASS IO/SCT, S/AS, OES/NET (BORIGHT)
USDOEHQ GERMANTOWN FOR BARRY RICH/DSS
ACDA FOR F. HOUCK

E.O.11652: GDS

TAGS: PARM, TECH, IAEA, EC

SUBJECT: IAEA/EURATOM SAFEGUARDS ARRANGEMENTS: DETECTION
TIME

REF: (A) ADLER/LABOWITZ TELCON 8 FEBRUARY, (B) BRUSSELS
2149, (C) VIENNA 966

1. AS NOTED REF A, MISSON HAS RECIEVED, ON INFORMAL
BASIS, DRAFT DATED FEBRUARY 7 OF "REPORT BY THE DIRECTOR
GENERAL ON THE SAGSI MEETING 16-20 JANUARY 1978". THE
DRAFT WAS PREPARED IN FISCHER'S OFFICE AND INCLUDES
MODIFICATIONS SUGGESTED BY ROMETSCH. ACCORDING TO DAVID
FISCHER, DG EKLUND PLANS TO GIVE THIS REPORT AT FEBRUARY
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PAGE 02 VIENNA 00001 091341Z

21 BOARD MEETING. OBJECTIVE IS FOR BOARD TO BE INFORMED
OF BASIS FOR SECRETARIAT APPROACH ON ESTABLISHING
DETECTION TIME REQUIREMENTS IN CURRENT FACILITY ATTACH-
MENTS. TEXT OF DG'S DRAFT IS REPRODUCED BELOW (PARA 6).
2. MISSION ANTICIPATES SUGGESTING SOME BRIEF FACTUAL
CORRECTIONS AND EDITORIAL CHANGES TO FISCHER AND WOULD
WELCOME DEPARTMENT'S VIEWS ON DOCUMENT ASAP.

3. ACCORDING TO FISCHER, FRG MISOFF SPILKER EXPRESSED SOME CONCERN ABOUT AGENCY PLANS FOR ESTABLISHING DETECTION TIME GOALS. FISCHER THEREFORE INFORMALLY GAVE COPY OF DG'S DRAFT REPORT TO SPILKER ON FEBRUARY 7 IN HOPES THAT THERE IS SUFFICIENT FLEXIBILITY, VAGUENESS AND TEMPORARINESS IN THE POSITION TO SATISFY FRG.

4. CONSISTENT WITH REF B, FISCHER UNDERSTANDS THAT THE EC ATOMIC QUESTIONS GROUP HAS LOOKED AT THE IAEA PROPOSAL OF 26 JANUARY (REF C). IT HAS NOW BEEN PASSED UP TO THE COREPER WHO PLAN TO CONSIDER THE LWR ISSUE ON FEBRUARY 9 AND THE DETECTION TIME ISSUE ON FEBRUARY 16. HE FURTHER UNDERSTANDS THAT EC MAY REQUEST SOME MODIFICATION OR QUALIFICATIONS OF THE IAEA'S JANUARY 26 PROPOSAL, BUT HE HAS NO DETAILS ON WHAT THEY MIGHT BE OR HOW THEY MIGHT AFFECT IAEA SAFEGUARDS OBJECTIVES. THIS MAY BE A CHANGE FROM THE SITUATION REPORTED LAST SENTENCE PARA 1 REF B. HE ALSO UNDERSTANDS THAT NEITHER ISSUE IS SCHEDULED TO GO TO THE COUNCIL OF MINISTERS LEVEL.

5. FOR RICH/DSS; SUGGEST COPY OF DRAFT REPORT BE TRANSMITTED TO SAGSI DELEGATE BENNETT TO CHECK ACCURACY OF REPORT WITH HIS RECORDS AND RECOLLECTION OF JANUARY 16-20 MEETING.

6. DRAFT REPORT IS AS FOLLOWS:
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PAGE 03 VIENNA 00001 091341Z

BEGIN TEXT. REPORT BY THE DIRECTOR GENERAL ON THE SAGSI MEETING. 16-20 JANUARY 1978.

1. IN 1970, THE SAFEGUARDS COMMITTEE RECOMMENDED AND THE BOARD SUBSEQUENTLY APPROVED IN INFCIRC/153 A CLEAR DEFINITION OF THE OBJECTIVE OF SAFEGUARDS NAMELY, THE TIMELY DETECTION OF DIVERSION OF SIGNIFICANT QUANTITIES OF NUCLEAR MATERIAL FROM PEACEFUL NUCLEAR ACTIVITIES TO THE MANUFACTURE OF NUCLEAR WEAPONS OR OF OTHER NUCLEAR EXPLOSIVE DEVICES OR FOR PURPOSES UNKNOWN, AND DETERRENCE OF SUCH DIVERSION BY THE RISK OF EARLY DETECTION. THE BOARD LEFT IT, HOWEVER, TO THE SECRETARIAT TO DEVELOP ACTUAL VALUES FOR SUCH CONCEPTS AS "SIGNIFICANT QUANTITIES" AND "TIMELINESS OF DETECTION". THE NEGOTIATION OF SUBSIDIARY ARRANGEMENTS AS WELL AS PRACTICAL EXPERIENCE IN IMPLEMENTING SAFEGUARDS DURING THE LAST SIX YEARS HAS, STEP BY STEP, PERMITTED US TO REACH A BETTER DEFINITION OF THE VALUES OF SIGNIFICANT QUANTITIES, DETECTION TIMES AND THE RELATED CONCEPT OF CONVERSION TIME.

2. LET ME EXPLAIN FIRST WHAT WE MEAN BY THE LAST TWO CONCEPTS.

3. THE CONVERSION TIME IS DEFINED AS THE TIME THAT WOULD BE NEEDED FOR CONVERTING NUCLEAR MATERIAL IN A GIVEN PLANT FROM THE FORM IT IS IN E.G. IRRADIATED FUEL INTO THE METALLIC COMPONENT OF A NUCLEAR EXPLOSIVE DEVICE.

4. DETECTION TIME IS THE TOTAL TIME BETWEEN THE PHYSICAL DIVERSION OF SAFEGUARDED NUCLEAR MATERIAL AND THE CONCLUSION BY THE AGENCY THAT A DIVERSION HAS OCCURRED.

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PAGE 01 VIENNA 01233 02 OF 02 091343Z

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C O N F I D E N T I A L SECTION 02 OF 02 VIENNA 01233

5. THE BOARD WILL RECALL THAT IN THE FIRST SPECIAL SAFEGUARDS IMPLEMENTATION REPORT OF WHICH THE BOARD TOOK NOTE ON 24 SEPTEMBER LAST YEAR (GOV/DEC/94(XX) DECISION NO. 53) THE SECRETARIAT LISTED A NUMBER OF TECHNICAL OBJECTIVES TO BE ACHIEVED IN SAFEGUARDING SPECIFIC TYPES OF FACILITIES. FOR THIS PURPOSE THE SSIR ALSO LISTED THE SIGNIFICANT QUANTITIES OF DIFFERENT TYPES OF NUCLEAR MATERIAL OF WHICH THE LOSS MUST BE DETECTED WITHIN A SPECIFIED DETECTION TIME. IN OTHER WORDS, FOR EACH TYPE OF MATERIAL THE AGENCY MUST BE ABLE TO DETECT THE DIVERSION OF NOT LESS THAN THE GIVEN AMOUNT WITHIN THE GIVEN PERIOD OF TIME. THE SSIR INDICATES, FOR INSTANCE, THAT FOR IRRADIATED FUEL ASSEMBLIES IN LIGHT WATER REACTORS THE OBJECT WAS A DETECTION TIME OF 2-3 MONTHS (GOV/1842, ANNEX PAGE 23, PARA, 5.1).

6. THE SECRETARIAT IS ACCORDINGLY USING THIS OBJECTIVE AS

ONE OF THE BASIC ASSUMPTIONS IN PREPARING FACILITY
ATTACHMENTS FOR LIGHT WATER REACTORS.

7. AT ITS MEETING FROM 16-21 JANUARY, SAGSI BEGAN THE
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PAGE 02 VIENNA 01233 02 OF 02 091343Z

EXAMINATION OF THE WHOLE OF THE AGENCY'S SAFEGUARDS
SYSTEM INCLUDING ITS GENERAL GOALS AND THE CONCEPTS
WITHIN WHICH IT MUST OPERATE AS WELL AS ITS INDIVIDUAL
TECHNICAL OBJECTIVES SUCH AS THRESHOLD AMOUNTS, SIGNIFICANT
QUANTITIES, CONVERSION TIME, DETECTION TIME AND PROBABILITY
OF DETECTION. SAGSI RECOMMENDED THAT THE CONVERSION TIME
FOR PURE COMPOUNDS OF HIGHLY ENRICHED URANIUM, PLUTONIUM
OR URANIUM 233 SHOULD BE 1-3 WEEKS; FOR IRRADIATED FUEL
CONTAINING PLUTONIUM IT SHOULD BE TWO MONTHS AND FOR LOW
ENRICHED AND NATURAL URANIUM IT SHOULD BE ONE YEAR.

8. WITH REGARD TO DETECTION TIMES, SAGSI'S ADVICE WAS
THAT THEY SHOULD CORRESPOND IN ORDER OF MAGNITUDE TO THE
CONVERSION TIMES BEARING IN MIND ALL THE QUALIFICATIONS
ATTACHED TO THE DEFINITION OF THE LATTER. HOWEVER, THE
VALUES FOR DETECTION TIMES SHOULD FOR THE TIME BEING BE
CONSIDERED AS PROVISIONAL; PRACTICAL EXPERIENCE MIGHT
LEAD TO REVIEW AND REVISION.

9. TO GIVE AN EXAMPLE: THE CONVERSION TIME FOR SIGNIFI-
CANT QUANTITIES OF HIGHLY ENRICHED URANIUM AND PLUTONIUM
IN THE FORM OF NON-IRRADIATED COMPOUNDS WOULD BE OF THE
ORDER OF 1-3 WEEKS, AND THIS WOULD SET THE DETECTION TIME
GOALS FOR PLANTS SUCH AS REPROCESSING PLANTS IN WHICH SUCH
MATERIAL IS PRESENT IN SIGNIFICANT QUANTITIES.

10. IT SHOULD BE STRESSED THAT A MINORITY OF MEMBERS OF
SAGSI WERE OF THE OPINION THAT THE MATTER REQUIRED
CONSIDERABLY MORE STUDY BEFORE DEFINITIVE CONCLUSIONS
COULD BE REACHED. THE PRACTICAL POSSIBILITIES OF
ACHIEVING DETECTION TIME GOALS IN DIFFERENT OPERATIONAL
CIRCUMSTANCES SHOULD BE LOOKED AT BEFORE LAYING DOWN THE
LAW ON THIS SUBJECT. THE DETECTION TIME GUIDELINES MIGHT
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PAGE 03 VIENNA 01233 02 OF 02 091343Z

HAVE TO BE APPLIED IN A DIFFERENT MANNER, FOR INSTANCE, FOR
VERY LARGE REPROCESSING PLANTS WHICH ARE STILL ON THE DRAW-
ING BOARD. THE SAFEGUARDING OF SPECIFIC REPROCESSING
CAMPAIGNS IN PLANTS IN NUCLEAR WEAPON STATES WILL ALSO
REQUIRE A DIFFERENT APPROACH. PRACTICAL DIFFICULTIES MAY

ARISE IN CERTAIN OTHER TYPES OF PLANTS SUCH AS MIXED OXIDE FUEL FABRICATION PLANTS. SAGSI RECOGNIZED THAT DIFFICULTIES IN THE IMPLEMENTATION OF THE GUIDELINES COULD BE RESOLVED IN CLOSE COOPERATION BETWEEN THE AGENCY AND FACILITY OPERATORS.

11. SAGSI'S ADVICE WITH REGARD TO SHORT DETECTION TIMES AT REPROCESSING PLANTS SHOULD BE CONSIDERED A PROVISIONAL WORKING BASIS AT THIS MOMENT. THERE WILL BE FURTHER POSSIBILITIES OF STUDYING THE MATTER, FOR INSTANCE, AT THE ADVISORY GROUP MEETING ON SAFEGUARDING REPROCESSING PLANTS WHICH WILL BE HELD IN JUNE THIS YEAR, OR, IN GROUP IV OF INFCE WHICH HAS LISTED "IMPROVED SAFEGUARDING OF REPROCESSING PLANTS" AS A SPECIFIC TOPIC.

12. NEVERTHELESS, SAGSI'S ADVICE WILL NOW ENABLE THE AGENCY TO COMPLETE THE FACILITY ATTACHMENTS FOR PLANTS IN VARIOUS COUNTRIES WHICH ARE IMMEDIATELY COMING UNDER SAFEGUARDS AS A RESULT OF EXISTING SAFEGUARDS AGREEMENTS. PENDING FURTHER ADVICE FROM SAGSI AND OTHER ADVISORY GROUPS AS WELL AS ADVICE TO BE TAKEN FROM SPECIFIC INFCE STUDIES, THE SECRETARIAT WILL THEREFORE USE THE GUIDELINES ON DETECTION TIMES FOR THIS LIMITED PURPOSE ONLY. END TEXT.
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